

A FURTHER REPORT ON THE EFFECTS OF REPETITION OF VERBAL SIGNALS UPON HUMAN BEHAVIOUR*

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A report summarizing the progress made in this field was presented to the annual meeting of the Royal Medico-Psychological Association in July, 1959 (1). The present paper deals with the progress made since that date.

To provide a background for the further steps to be reported, the major advances in the development of this field are now outlined in chronological order: In 1953 we established the central fact upon which our subsequent investigations have been based, namely, that exposure of the individual to prolonged repetition of verbal signals will produce a change in his behavior, and that the nature of this change will bear a relation to the content of the signals (2). The signals used at that time consisted in statements made by the patient during the course of psychotherapy.

Two years later in 1955, it was found that such changes could also be brought about using statements (verbal signals) set up by ourselves on the basis of our knowledge of the dynamics of the patient, and predetermined plans for changes in the personality of the patient (3).

It was discovered in the same year, namely, 1955, that change in the personality pattern can be brought about most readily provided the existing personality "set" could be temporarily broken up by various means—the most effective means then being prolonged sleep either alone or combined with electroshock (4).

In 1957 it was ascertained that changes could be more easily produced if we succeeded in activating a desirable but dormant behavioral pattern. We also found that such "contra-traits" tended to underlie all active undesirable personality

characteristics (5). For example, along with ongoing passivity, there was apt to be in existence a dormant urge toward normal self-assertiveness and initiative.

We also found in 1957 that it was possible to produce physiological change by repetition of verbal signals, and a report was made on changes thus produced in the flexor-extensor dominance of muscles in the forearm (6).

The last step in the summary of experiments leading up to the present paper was that in 1958 we discovered that behavioral changes produced by this procedure could be made much more long lasting if reinforced by periodic repetition of verbal signals carried out for several weeks or months subsequent to the intensive procedure (7).

In the last two years we have been engaged upon the following major problems: a) Simplification of the procedure; b) Methods of making permanent the behavioral changes produced by repetition; c) Improved methods of assessment and validation of effects.

Procedure

The procedure consists of six components:

1. Selection of the subject
2. Preparation of the subject
3. Preparation of the signals
4. Exposure to repetition
5. Reinforcement of the effects
6. Assessment and validation of effects.

With regard to *selection*, we select primarily chronic psychoneurotic patients in whom all previous forms of therapy have failed. They range in age from 25 to 55 years and we include all types of psychoneurotic subjects save those in poor health.

Physical Health

In the *preparation of the patient*, we have hitherto found that it is desirable

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that the patient should be prepared for exposure to repetition by a) reducing his critical awareness, b) breaking up his neurotic structures whether or not these are particularly firmly established. Until the year 1959 we used a variety of means to achieve this end—the most effective of these being prolonged sleep (30 to 60 days) and repeated electroshock treatments (15 to 30).

More recently, we have attempted to find measures of preparation which would be simpler and also permit of a more continuous uptake of the verbal signals. We are reporting attempts to accomplish this by using sensory deprivation to produce the necessary reduction in critical awareness and by using curare to achieve the necessary reduction in activity which will ensure that the patient remains in the area of repetition. This method has considerably reduced the amount of time required for the preparation of the patient and, as will be shown later, has been even more effective in most instances than the previously used method of preparation.

With regard to the *preparation of signals*, in accordance with our more recent discovery of the existence of contra-traits, our signals are set up in two forms: the negative verbal signals which consist of those criticisms which the patient has expressed or which he has accepted when expressed by others in relation to his neurotic behavior, and the positive signals which consist of statements concerning the goals and aspirations which the patient has set up for himself with respect to changes in his conduct.

We have found more recently that it is important to watch the behavior of the patient closely during the period of *exposure to repetition* and, more particularly, during the period of exposure to negative signals in order to detect the phase when the original acceptance by the patient of these criticisms gives way to growing irritation and rejection of them. This we see as indicating that the

underlying contra-traits are being activated.

Whenever irritation and rejection are well established—which usually takes about ten days—we switch over to the use of positive signals which are continued for about another ten days, terminating when the patient shows obvious indications of restlessness and a desire to be up and around, engaged in his everyday tasks once more.

With regard to the *reinforcement* of effects, we have worked out a procedure whereby the first appearance of change is noted by the staff and the patient is given considerable social acceptance on the basis of his emerging, let us say, self-confidence, assertiveness, freedom from fears or ability to take initiative.

After the period of exposure is terminated, we then gradually return the patient to full activity in the Institute. He goes to Occupational Therapy, to the dances; he goes downtown, he meets in group discussions and in ordinary friendly exchanges with the other patients. For two hours, twice daily, each day, however, he retires to his room and listens to the positive signals.

In the last year we have discovered that to send such patients home immediately following treatment, often results in considerable attrition of their new behavioral patterns. Even where the family is ostensibly in favor of the changes in behavior, there often exist in the home powerful cues which tend to bring back old neurotic patterns. For this reason, we have been placing our patients in foster homes for three months prior to returning home. When we do this, we have them come back to the Institute two or three times a week and listen for a couple of hours at a time to the repetition of their positive verbal signals.

Finally, with reference to the *assessment and validation* of effects, we have been using a variety of means. The ordinary psychological methods do not seem to give reliable indices of change—nor do their findings correspond ade-

TABLE I

Case	Diagnosis	Sex	Age	Duration of illness*	Prior treatment
1	Chronic anxiety reaction, conversion features, 000-X01 (mixed psychoneurosis)	M	23	3 years	Psychotherapy, tranquilizers
2	Chronic anxiety reaction with conversion features, 000-X01 (mixed psychoneurosis)	F	45	6 years	Psychotherapy, tranquilizers, ECT, insulin, N ₂ O
3	Chronic anxiety reaction with conversion features, 000-X01 (mixed psychoneurosis)	F	27	2 years	Psychotherapy, tranquilizers
4	Chronic anxiety reaction with conversion features, 000-X01 (mixed psychoneurosis)	F	48	12 years	Psychotherapy, tranquilizers
5	Depressive reaction, 000-X06	F	36	2 years	Psychotherapy, tranquilizers
6	Obsessive-compulsive reaction 000-X05	F	53	15 years	Psychotherapy, sedatives, tranquilizers
7	Chronic anxiety reaction with conversion features, 000-X01, (mixed psychoneurosis)	F	50	2 years	Psychotherapy, tranquilizers, ECT
8	Chronic anxiety reaction with conversion features, 000-X01, (mixed psychoneurosis)	F	47	2 years	ECT, tranquilizers, insulin
9	Chronic anxiety reaction with conversion features, 000-X01 (mixed psychoneurosis)	F	52	20 years	ECT, tranquilizers, insulin
10	Chronic anxiety reaction with conversion features, 000-X01, (mixed psychoneurosis)	M	27	2 years	Psychotherapy and sedatives

* The duration of illness shown here refers only to overt marked symptomatology, but personality disturbances go back many years in each case.

quately to the reports of change given by the relatives, by the patient and by the staff. For this reason, we have been exploring the use of the plethysmograph, the G.S.R., the electronic analysis of voice and sound movies. The latter constitutes by far the most effective way of demonstrating change.

Present Study

The present study was carried out with respect to ten patients. The foregoing procedure was followed with certain modifications which will be noted in the text. The ten patients suffered from psychoneurotic conditions and further details are outlined in Table I.

Prior to the preparation for exposure to verbal repetition, the behavior of the patients was assessed by the following means:

1) Extensive reports were obtained from the relatives and the patients and on the basis of nursing and medical observations. These reports dealt with the patients' interpersonal relations, with their daily routine, with their capacities and their symptomatology.

2) Psychological tests, including the projective techniques, were also employed.

3) The galvanic skin reflex test was carried out with respect to key phrases

and key words dealing with their problems.

In the selection of subjects, we also made a preliminary study of their conditioning ability.

4) Sound movies were taken and electronic analyses were made of their vocal productions.

The patients were then prepared by placing them under conditions of reduction in sensory input and, in order to reduce their activity and thereby maintain them in the area of repetition, they were given intramuscular injections of curare in beeswax in amounts ranging from mgs. 15 to 150; but the average dose was mgs. 30 to mgs. 60. This average dose produced underactivity and resulted in no interference with the respiratory musculature. The higher dose did. It was found, however, in cases Nos. 6 and 7 that so much anxiety developed, it was impossible to follow our original intention of carrying out sensory deprivation from the outset and, hence, these patients had to be transferred to the sleep procedure for varying periods. In the case of patient No. 6, this period lasted for 26 days and in the case of No. 7, it lasted for 36 days. The patients were then transferred back to conditions of sensory deprivation and they were able to tolerate it much more effectively.

In cases Nos. 8 and 9, although sensory deprivation was continued for a period of time, very little disorganization of the personality was produced and (possibly for this reason) relatively little change was achieved by exposure to repetition. Therefore, these patients were subsequently put under sleep and shock therapy in order to break up their neurotic patterns. Once this was done, they were again exposed to prolonged repetition of verbal signals.

The repetition of negative verbal signals was commenced with each patient as soon as the effects of sensory deprivation were discernible. These effects were disorientation, minor alterations in body image, increase in reminiscence and,

occasionally, an increase in body activity designed to maintain the body image, such as rubbing of the fingers together, rubbing of the body.

It may be said here that we were disappointed in the effects of sensory deprivation and although our procedures were rendered more rigorous than those used in other centers and were prolonged far beyond the duration reported from other centers—in one case it was carried on for 16 days—the results did not become more marked with greater intensification of the procedure or prolongation of exposure.

The first sequence in the running of verbal signals is the delivery of negative signals. Following is an example:

"Gertrude, you don't get along with people. You have never gotten along with your mother; she made you do what she wanted and you could never win out against her. You have always felt inadequate, and have been jealous of other people who felt that they had it better than you. You are always trying to make other people do what you want, but, even when you succeed, you don't feel good. You are forever trying to make your husband do what you want him to do because you think that he is not strong, and you try to turn the children against him."

Such negative signals were run until the patient, who had originally accepted the statement, began to show irritation and annoyance. We took this, as stated earlier, as an indication that the underlying "contra-trait" was being activated. After this period, which lasted about 10 days, we then started repetition of positive statements, and example, of which is:

"Gertrude, you want to be free like other women. You are trying to give up manipulating people by your complaints and find that you can get along very satisfactorily if you deal with people in a simple direct way. You want other people to like you, and you find that by being friendly, open and direct with them, they do like you. You want to have confidence. As you think about your rela-

TABLE II
POST-TREATMENT RESULTS IMMEDIATELY FOLLOWING REPETITION OF VERBAL SIGNALS

Case No.	No. of major positive changes*	No. of minor positive changes ¹
1	3	4
2	4	4
3	4	4
4	3	4
5	4	4
6	3	4
7	4	4
8	2	3
9	1	1
10	2	2

* **Column No. 2** represents those major beneficial changes directly attributable to repetition of verbal signals, as judged by all observers, including staff, relatives and the patient.

¹ **Column No. 3** represents those minor beneficial changes directly attributable to repetition of verbal signals as judged by all observers — as above.

tions with your mother, you see that you are now grown up, that your mother is no longer a threat to you, and you can be free to "deal with her as a grown-up woman instead of trying, as in the past, to manipulate her as a child. Gertrude, you like to be with people, you like to be close to them, you like to reach out to them and touch them."

These positive signals were carried on for varying periods—usually another ten days—or until such time as the patient showed dissatisfaction and clearly indicated his wish to be up and around and going about his daily tasks. Repetition was carried on from 6 a.m. to 9 p.m. and was led in to his earmuffs which occluded all other sounds.

Following upon the cessation of the exposure to repetition, the patient was then brought out of sensory deprivation and re-established on the ward. Reinforcement, as described earlier, had already been started during the period of exposure to repetition.

Plans were then made for the discharge of the patient not to his own home but to a foster home, and those in charge of the foster home were instructed in the matter of giving reinforcement and social acceptance to the new personality characteristic.

Before leaving the hospital, assessment was carried out and the four extensive types of survey, already listed, were carried on at least one occasion. In several instances, recheck surveys were carried through after the patient had left the hospital. Subsequent to leaving the hospital, further reinforcement was carried on by having the patient come up and listen to the positive statements for two hours two or three times a week.

Results

Direct observations by all observers—psychiatrists, nurses, social workers, relatives and the subject—were in agreement that all of the ten cases showed changes in the planned direction. These changes were varied in extent and duration. For the purposes of this presentation, they are divided into two categories:

Major changes, i.e., those involving an extensive range of the behavior of the individual and revealing themselves repeatedly throughout the day. (See Table No. II.)

Minor changes involving limited aspects of the behavior of the individual and observed only occasionally. (See Table No. II.)

Case I

Prior to exposure to repetition, the patient lacked confidence, showed in-

ability to enjoy life, to experience pleasure, felt like a child, was unable to assert himself and to pursue his occupation because of strong feelings of inferiority. Attempts at psychotherapy of an intensive nature with eight therapists had brought about no results. Following exposure to repetition, the patient showed assertiveness, aggressivity, feelings of confidence, interest in heterosexual activity, ability to deal constructively with everyday life situations.

Psychological testing showed the following: Before treatment, the patient was seen as having considerable tension resulting from repression of affectional needs; interpersonal bonds were weak. There was a rejection of help from elders, seemingly as a reaction to the need for affection. Sexual conflict was strong with feminine identification and inability to express aggressive male tendencies. Post treatment: Patient appeared to be more productive; his responses tended to be very personalized with less bizarre quality. While more aware of his immediate needs, there was little possibility of impulsive expression because of outer control. There was considerable expression of aggression, but altered to creative rather than destructive actions. However, this patient could not remain for prolonged reinforcement and it is reported that he has shown a considerable measure of relapse.

Case 2

Prior to exposure to repetition, this patient presented feelings of inferiority, inadequacy, depression and anxiety, anorexia, crying spells, difficulty in interpersonal relationship, inability to deal with her children. As a result of exposure to repetition, she became extremely assertive, antagonistic and, on one occasion even belligerent, which was quite out of keeping with her previous personality. She became difficult to control on the ward and insisted on leaving hospital. At home, however, she was able to deal most adequately with her family. Her inter-

personal relations improved and she lost her somatic complaints.

Psychological testing prior to treatment showed an inadequate, dependent and immature personality; fearful of rejection by her children. On post-treatment testing, the Rorschach was more productive and on the T.A.T. she appeared to be more willing to accept reality situations and there was no expression of fear.

Case 3

This patient came to hospital with marked feelings of inadequacy, unable to work, and with many somatic complaints. Subsequent to exposure to repetition, she is working, she is much more confident and has broken with her common-law husband to whom she is subservient.

In psychological tests prior to exposure to repetition, she was seen as a compulsive neurotic who tended to accept a passive role whenever she found herself inadequate in achieving her goals. Promiscuity was justified by suggesting that marriage was unattainable. Men were unfaithful and parental attitudes too severe. After treatment on psychological testing, the patient expressed a need to be understood; there was less anxiety and rejection of parental attitudes. There was a reduction of tension, of compulsivity and greater spontaneity. There was also a change in the aspiration level before and after treatment.

Case 4

This patient presented multiple somatic complaints, apathy, dizzy spells, fatigability; continued inability to function in her role as a housewife for five years prior to admission. Subsequent to exposure, the somatic complaints disappeared, she was more spontaneous, outgoing and assertive. She was placed for a time in a foster home and was later able to resume her role as a housewife.

Psychological tests before exposure to repetition revealed anxiety, general inability to relate to her environment, considerable preoccupation with her inadequacy as a wife. After treatment, her

responses showed her thinking to be more clear and aggressive, and such changes in her thinking corresponded with the driving statements. There was a reduction in sex anxiety and she was more relaxed, more purposeful in her response to testing.

Case 5

This patient presented symptoms of depression, tension, insomnia, anorexia; difficulties in interpersonal relations because of her argumentativeness and constant bickering with her husband. Following exposure to repetition, the patient became contented, placid and cooperative. Her anxiety and discomfort disappeared and she was eager to achieve a normal marital relationship and is functioning quite adequately.

Previous psychological testing suggested a mixed neurosis with marked anxiety and indecision, severe sexual problems, impulsive behavior and loss of control in normal everyday situations. In the after-treatment testing session, the patient was cooperative, showed none of the previous hostility and displayed less tension and anxiety. There was more control over her impulsive tendencies.

Case 6

Previous to exposure to repetition, this patient had severe obsessional ruminations, depression and insomnia. She had difficulty in making decisions, suicidal ruminations, marked anxiety and conversion symptoms. Because of her over-anxiety, this patient was not placed under conditions of sensory deprivation immediately and hence was put on a period of 26 days of sleep. Then, when her anxiety was reduced, she was exposed to sensory deprivation and repetition. Subsequent to this, her anxiety was still further reduced; there was a total reduction of symptomatology, an increase in her feelings of independence, and she behaved with greater confidence and assertiveness.

Psychological pre-treatment testing revealed limited resources, deteriorating

obsessive defenses, inadequate self-control in interpersonal relationships and strong ambivalent feelings toward the members of her family.

Psychological testing after exposure showed the same basic patterns of severe neurosis with breaks in reality testing—particularly in the area of interpersonal relationships, but this report conflicts markedly with the results of our clinical observations and also with the results of the Conditioning Results tests.

Case 7

Before repetition, this patient presented multiple somatic complaints, irritability, depression, inability to carry out her role as a housewife, and difficulty in interpersonal relationships because of her hostile behavior. She was antagonistic and demanding. Following her exposure, she became pleasant, cooperative and her symptomatology disappeared; she was forthright in her interpersonal relationships and less manipulative.

Psychological pre-treatment testing showed a basically hysterical person. There was evidence of depression, hostility towards her husband, dependency and fear of rejection in her relationship with her children. There was a lack of capacity for meaningful relations. Post-psychological testing: After verbal repetition, the patient appeared to be more relaxed. She was less obsessive and not so depressed; she was much more able to deal with interpersonal relationships as she was less self-centred and *displayed* more capacity for emphatic relationships. On one occasion she expressed her resentment towards her husband, but qualified it more than in the last post-testing session.

Case 8¹

This patient complained of anxiety, somatic complaints, conversion symptoms, inability to work and difficulties in her relationships with friends and relatives. Her response to the verbal repeti-

¹Re cases Nos. 8 and 9, post-treatment psychological testing was not carried out.

tion was marked by the reduction in her conversion symptoms, more adequate relations with people and a reduction in her symptomatology. There was a greater freedom of expression.

Psychological testing before treatment showed an anxious, obsessive-compulsive woman who rigidly adhered to repression. She was incapable of any close relationship and developed psychosomatic symptoms as a result of her problems.

Case 9¹

This patient's presenting symptoms were multiple somatic complaints, inability to work, chronic hypochondriasis and inability to function adequately. Subsequent to repetition, there was a reduction in hypochondriasis but a continuance of the conversion symptomatology. There was an increase in her ability to relate to her environment.

Psychological testing before treatment revealed a severely depressed, hysterical woman of limited intelligence with marked conflict and hostility towards both sexes. There was no effort towards constructive ideation and severe inhibition and dependency.

Case 10

This patient's presenting symptoms were tension, anxiety and somatic complaints. He showed evidence of depression expressed in ideas of hopelessness about the future. Subsequent to exposure to repetition of verbal signals, there was a general reduction in the patient's symptomatology and a particularly marked improvement in regard to his depression. Unfortunately, this patient became hostile towards the verbal repetition and it had to be terminated.

Pre-treatment psychological testing revealed anxiety with concomitant phobias. There was evidence of strong dependency needs and marked conflict between these and his fear of aggression. Psychological testing after exposure to repetition showed little over-all change. There appeared to be emphasis on a continuing

conformity in his relationship with male figures as well as anxiety over oppositional tendencies.

The results of the electronic analysis of the voice and of the galvanic skin reflex check will be presented in a subsequent report.

Analysis of Movies

Sound movies were taken of all patients before and after exposure to repetition of verbal signals. These movies fall into four categories: 1) Patient walking from a wall to the mid-point in the room and back; 2) Getting up from a chair and sitting down on another chair placed back to back with the first; 3) A brief interview with a therapist on the topics of immediate concern; 4) Group interaction movie this showing the patient playing a game of Scrabble with three occupational therapists.

These movies were analysed by simultaneous projection of the before and after movies on the screen as follows: a) In the case of the simplest situations (Nos. 1 and 2 above), special comparative techniques were developed whereby the before and after shots could be projected on the same film; hence particularly exact comparisons could be made between the twin movies. b) In the case of the getting up and sitting down movies, films were combined in such a way that the patient was shown as sitting on one of the chairs before exposure to repetition, and the after movie showed the patient sitting on another chair back to back. The figures rose and moved simultaneously to the opposite chairs. c) In the walking and the getting up and down scenes, the two images were superimposed so that, again, very slight changes in speed, posture, relationship to objects and appearance could be easily detected.

The changes revealed by the before-and-after movies were of the same kind and intensity as those reported by the observers. Furthermore, change could be more easily discerned and accepted through the analysis of the movies than

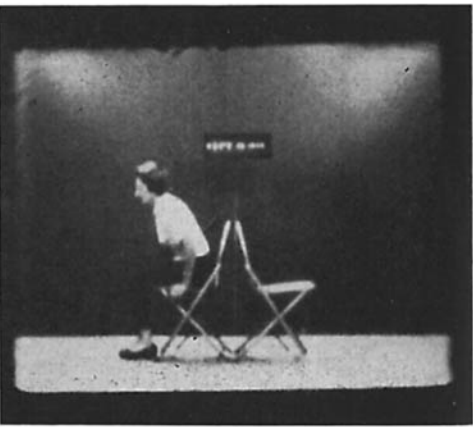
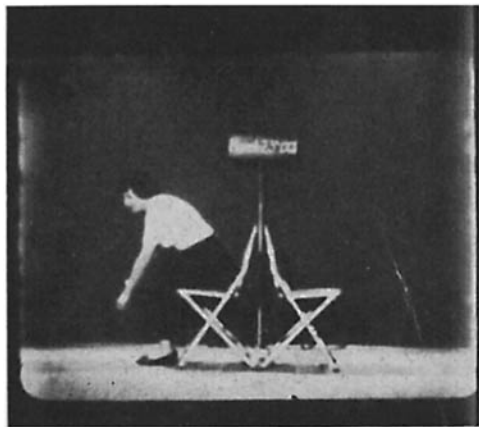
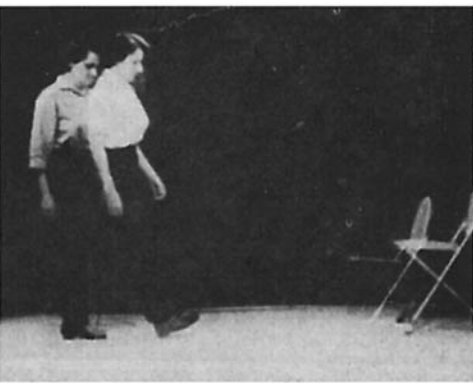
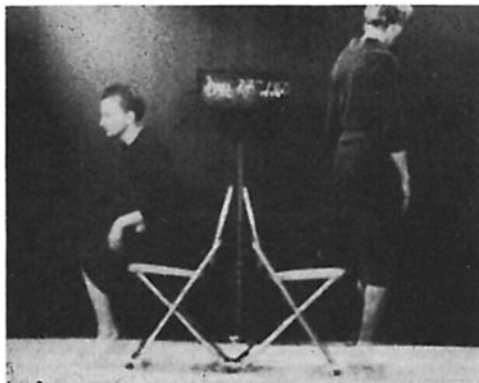
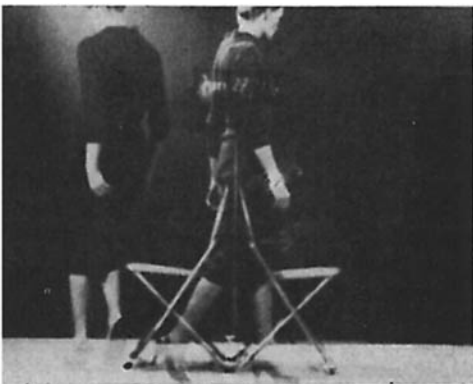
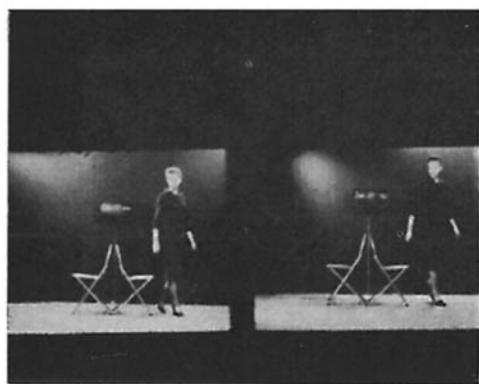


TABLE III

	1. Extinc. Orient- ing Reflex		2. Prim. Condit. Reflex		3. Extinc. Prim. Condit. Reflex		4. Condit. Stimulus Generalization		5. Diff. Posit. Neg. Condit. Stimuli	
	Before	After	Before	After	Before	After	Before	After	Before	After
Case No. 1	+	+	+	+	+	+	+	+	-	+
Case No. 2	-	+	-	-	-	+	-	-	-	-
Case No. 3	+	+	+	+	-	+	-	+	-	+
Case No. 4	-	+	-	+	-	+	-	-	-	-
Case No. 5	+	+	+	+	-	+	-	+	-	+
Case No. 6	+	+	+	+	-	+	-	+	-	+
Case No. 7	+	+	-	+	-	-	-	-	-	-
Case No. 8	+	-	-	-	-	-	-	-	-	-
Case No. 9	-	-	-	-	-	-	-	-	-	-

(No conditioning tests were given in respect to case No 10.)

otherwise. The major changes noted were:

1. Increased speed of movement;
2. Decrease in flexion—the patient holding himself much more upright;
3. Increased freedom of movement in the sense that accessory movements began to appear in the post-exposure movies, and gesturing in these latter was more frequent and more extensive;
4. Greater interest in the self as shown by grooming in the post-exposure movies.
5. Post-exposure movies also showed decreased dependence upon objects as could be seen while the subject moved around objects in the room, sat beside the table or got up and sat down in a chair;
6. Greater social interaction subsequent to exposure as shown by greater initiative and decreased dependence on other members in the group.

Conditioning Results

A conditioning test procedure was carried out before and after the treatment period for evaluative purposes on these patients. An Offner 8-channel standardized E.E.G. machine was used for simultaneous recording of the unconditional

stimulus (air puff), conditional stimulus (sound) and eyeblink. Five parameters were investigated in the following order:

1. The extinction of the orienting reflex;
2. Primary conditional reflex formation;
3. Extinction of the primary conditioned reflex;
4. Conditioned stimulus generalization;
5. Differentiation of positive and negative conditional stimuli.

The criterion for establishment of change was the appearance of appropriate responses on three consecutive occasions during the test trial. To exclude the factor of exhaustion, the upper limit of the testing was restricted to 120 stimulations. Results of the tests are demonstrated in Table III. This records the presence or absence of the five physiological parameters in the series tested.

Discussion of the Results

According to the test results obtained in all cases, there was evidence of an impairment of the inhibitory activity before treatment. This was manifested in case No. 1 by the absence of differentiation of positive and negative conditional stimuli; in case No. 5 by the mobility of the extinction of the primary conditioned reflex. In cases 2, 4 and 9, even the orient-

ing reflex could not be extinguished. In cases Nos. 3 and 6 the primary conditional reflex could not be extinguished. In Nos. 7 and 8, although the orienting reflex was extinguished, the primary conditional reflex could not be established.

The most remarkable change in the test results on post-treatment testing occurred in cases Nos. 1, 3, 5 and 6 where all five physiological parameters could be established. In cases Nos. 2 and 4 extinction of the orienting reflex, the primary conditional reflex formation and extinction of primary conditional reflex were satisfactorily demonstrated. The test results indicate an improvement in the inhibitory activity of all patients who showed clinical improvement.

Conclusions

We should like to emphasize the value of this procedure as offering the possibility of replacing prolonged psychotherapy—both from the point of view that it can achieve results where prolonged psychotherapy is ineffectual and it is much more economical of time than psychotherapy.

We consider that a major advance has been made in our procedure insofar that it has been demonstrated that we can produce through exposure to repetition of verbal signals the same kind of change when the patient is prepared exclusively by means of sensory deprivation as we have been able to produce regularly for several years in patients prepared by prolonged sleep and E.C.T. We now have three methods of preparation of the patient:

1. Prolonged sleep and E.C.T.
2. Sleep used to reduce anxiety and followed by sensory deprivation;
3. Sensory deprivation.

With regard to our objective of simplifying the techniques, we also feel that we have made an advance insofar that sensory deprivation is considerably easier to carry out than is prolonged sleep.

There remains the need of still further studies in this field and particularly with

reference to further analysis of those factors in the home and community which tend to produce cues for the restoration of neurotic behavior. There are also important questions as to how the imprinting of the desired behavioral changes can be brought about most rapidly and with greater permanence. We believe that what we now achieve is essentially the establishment of a tendency to act in a given manner. This tendency may be temporarily submerged if the circumstances are overwhelming, but, under more favorable conditions, the tendency will once more reassert itself and if rewarding will tend gradually to become more and more established. For example, the patient will not necessarily be assertive to the point of belligerence but if his increased confidence in dealing with day-to-day situations (such as making choices, meeting people, putting forward ideas, winning arguments and in a host of ways showing that he is a man of some independence) gains, as it ordinarily does, the regard and approval of those around him, this tendency will progressively become incorporated in him. He will become this kind of a person rather than the timorous, shrinking, meek, obsequious person which he was prior to exposure to repetition of verbal signals.

Summary

We are presenting a report of further advances in the use of repetition of verbal signals as a means of producing change in human behavior. In this presentation we have reported on the following:

- 1) We have already in earlier publications shown that where the patient is prepared by sleep and electroshock therapy, changes of a predetermined nature can be produced in the behavior of the individual.

In this study we have shown that precisely the same changes can be produced: a) Where the patient is placed under conditions of sensory deprivation and then exposed to repetition of verbal signals; b) By the reduction of severe inhi-

bitory anxiety by preliminary prolonged sleep followed by sensory deprivation and exposure to repetition.

2) We have demonstrated the value of reinforcement of the predetermined personality changes produced by exposure to verbal repetition.

3) We have developed new methods of assessment and validation by means of sound movie analysis.

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Bibliography

1. Cameron, D. E., Levy, L., Rubenstein, R. Effects of Repetition of Verbal Signals Upon the Behaviour of Chronic Psychoneurotic Patients. *Jour. Mental Sc.*, 106, No. 443, April, 1960.
2. Cameron, D. E. Psychic Driving: Dynamic Implant. *Psychiat. Quart.*, 31:703-712, 1957.
3. Cameron, D. E., Levy, L., Rubenstein, R., Malmo, R. B. Repetition of Verbal Signals: Behavioural and Physiological Changes. *Am. J. of Psychiat.*, 115, No. 11, May, 1959.
4. Cameron, D. E. The Effects of Repetition of Verbal Signals Upon the Reorganization of the Schizophrenic Patient Subsequent to Intensive Physical Treatments. *Congress Report of the 2nd Inter. Cong. of Psychiat.*, Vol. III, Sept. 1957.
5. Ibid 1.
6. Cameron, D. E., Malmo, R. B. Effect of Repeated Verbal Stimulation Upon a Flexor-Extensor Relationship. *C. Psychiat. J.*, Vol. 3, No. 2, April, 1958.
7. Ibid 1.

Résumé

Nous présentons un rapport sur de plus amples progrès réalisés dans l'emploi de signaux verbaux comme moyen de produire une modification du comportement humain. Dans cette présentation, nous avons fait rapport de ce qui suit:

1) Nous avons déjà mentionné dans des publications antérieures que, lorsque le malade est préparé par le sommeil et la thérapie par l'électro-choc, des modifications d'une nature déterminée peuvent être produites dans le comportement d'un particulier.

Dans la présente étude, nous avons démontré que les mêmes changements peuvent précisément être produits

a) Lorsque le malade est placé dans des conditions de privation sensorielle et ensuite exposé à la répétition de signaux verbaux;

b) Par la diminution de l'anxiété sévère d'inhibition, au moyen d'un sommeil prolongé au préalable, suivi de privation sensorielle et d'une exposition à la répétition.

2) Nous avons démontré la valeur du renforcement de modifications prédéterminées de la personnalité produite par la répétition verbale.

3) Nous avons mis au point de nouvelles méthodes d'évaluation et de validation au moyen de l'analyse d'un film sonore.

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